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International Migration, Remittances and Poverty in Developing Countries*

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Abstract

Few studies have examined the impact of international migration and remittances on poverty in a broad cross-section of developing countries. This paper tries to fill this lacuna by constructing a new data set on poverty, international migration and remittances for 74 low and middle-income developing countries. Four key findings emerge. First, international migration – defined as the share of a country's population living abroad – has a strong, statistical impact on reducing poverty. On average, a 10 percent increase in the share of international migrants in a country's population will lead to a 1.9 percent decline in the share of people living in poverty ($1.00/person/day). Second, distance to a major labor-receiving region (like the United States or OECD (Europe) has an important effect on international migration. Developing countries which are located closest to the United States or OECD (Europe) are also those countries with the highest rates of migration. Third, an inverted U-shaped curve exists between the level of country per capita income and international migration. Developing countries with low or high per capita GDP produce smaller shares of international migrants than do middle-income developing countries. This study finds no evidence that developing countries with higher levels of poverty produce more migrants. Because of the considerable travel costs associated with international migration, international migrants come from those income groups which are just above the poverty line in middle-income developing countries. Finally, international remittances -- defined as the share of remittances in country GDP – has a strong, statistical impact on reducing poverty. On average, a 10 percent increase in the share of international remittances in a country's GDP will lead to a 1.6 percent decline in the share of people living in poverty.

International migration is one of the most important factors affecting economic relations between developed and developing countries in the 21st Century. At the start of the century the United Nations estimated that about 175 million people – roughly 3 percent of the world population – lived and worked outside the country of their birth. The remittances – money and goods – sent back home by these migrant workers have a profound impact on the living standards of people in the developing countries of Asia, Africa, Latin America and the Middle East. In 2002 the flow of international remittances to developing countries stood at $80 billion per year, a figure which was much higher than total official aid flows to the developing world.[1]

The purpose of this paper is to examine the impact of international migration and remittances on poverty in a broad cross-section of developing countries. In the past, a number of studies have examined the effect of international migration and remittances on poverty in specific village or country settings,[2] but we are not aware of any studies which examine the impact of these phenomena on poverty in a broad range of developing countries. Two factors seem to be responsible. The first is a lack of poverty data; it is quite difficult to estimate accurate and meaningful poverty headcounts in a wide and diverse range of developing countries. The second factor relates to the nature of data on international migration and remittances. Not only do few developing countries publish records on migration flows, but many developed countries which do keep records on migration tend to undercount the large number of illegal migrants living within their

borders. At the same time, the available data on international remittances do not include the large (and unknown) sum of remittance monies which are transmitted through private, unofficial channels. As a result of these data problems, a host of key policy questions remain unanswered. Exactly what is the impact of international migration and remittances on poverty in the developing world? How do international migration and remittances affect poverty in different regions of the developing world? What are the factors which cause people to migrate in the developing world?

This paper proposes to answer these, and similar, questions by using a new data set composed of 74 developing countries. This data set includes all those low- and middle-income developing countries for which reasonable information on poverty, inequality, international migration and remittances could be assembled. The data set includes countries drawn from each major region of the developing world: Latin America and the Caribbean, Middle East and North Africa, Europe and Central Asia, East Asia, South Asia and Sub-Saharan Africa.

The balance of this paper is organized as follows. Part 1 sets the stage by reviewing the findings of recent village- or country-level studies on the relationship between international migration, remittances and poverty. Part 2 then presents the new data set. Part 3 describes how this data set uses new sources of information to calculate the relevant migration, remittances and poverty variables. Part 4 describes the main econometric findings on the relationship between migration, remittances and poverty, and Part 5 discusses the determinants of international migration. The final section, Part 6, concludes.

1. International Migration, Remittances and Poverty

In the literature there is little agreement and scant information concerning the impact of international migration on poverty. Charles Stahl, for example, writes that "migration, particularly international migration, can be an expensive venture. Clearly it is going to be the better-off households which will be more capable of (producing international migrants)."[3] Similarly, Michael Lipton, in a study of 40 villages in India that focuses more on internal than international migration, found that "migration increases intra-rural inequalities. . . because better-off migrants are 'pulled' towards fairly firm prospects of a job (in a city or abroad), whereas the poor are 'pushed' by rural poverty and labor-replacing methods."[4]

Other analysts, however, suggest that the poor can and do benefit from international migration. For example, Oded Stark finds that in rural Mexico "relatively deprived" households are more likely to engage in international migration than are "better off" households.[5] In a similar vein Richard Adams, Jr. finds that in rural Egypt the number of poor households declines by 9.8 percent when household income includes international remittances, and that remittances account for 14.7 percent of total income of poor households.[6]

While the findings of these past studies are instructive, their conclusions are of limited usefulness due to small sample size. Stark's findings, for instance are based on 61 households from two Mexican villages while those of Adams' are based on 1000 households from three Egyptian villages. Clearly, there is a need to extend the scope of these studies to see if their findings hold for a larger and broader collection of developing countries.

2. A New Data Set on International Migration, Remittances and Poverty

Our evaluation of the impact of international migration and remittances in developing countries is based on a new data set that includes information on international migration, remittances, income inequality and poverty for 74 "low income" and "middle income" developing countries.[7] These countries were selected because it was possible to find relevant migration, remittances and poverty data for all of these countries since the year 1980.[8] Since it was not easy to assemble this data set, and data problems still plague this (and all other) studies on migration and remittances, it is useful to spell out how this information was assembled.

In the case of migration, few, if any, of the major labor-exporting countries publish accurate records on the number of international migrants that they produce. It is therefore necessary to estimate migration stocks and flows by using data collected by the main labor-receiving countries. For the purposes of this paper, the main labor-receiving countries (regions) include two: United States and the OECD (Europe), excluding North America and Asia.[9] Unfortunately, no data are available on the amount of migration to the third and fourth most important labor-receiving regions in the world, the Arab Gulf and South Africa.

Because of their importance to labor-exporting countries, remittance flows tend to be the best measured aspect of the migration experience. For instance, the International Monetary Fund (IMF) keeps annual records of the amount of worker remittances received by each labor-exporting country.[10] However, as noted above, the IMF only reports data on *official* worker remittance flows, that is, remittance monies which are transmitted

through official banking channels. Since a large (and unknown) proportion of remittance monies is transmitted through private, unofficial channels, the level of remittances recorded by the IMF underestimates the actual flow of remittance monies returning to labor-exporting countries.[11] The remittance figures used in this paper therefore underestimate the actual level of international remittances – official and unofficial – received by individual countries.

Finally, with respect to poverty, many developing countries – especially the smaller population countries -- have not conducted the type of nationally-representative household budget surveys that are needed to estimate poverty. For example, of the 157 developing countries classified as low- or middle-income by the World Bank,[12] only 81 countries (52 percent) have published the results of any household budget survey. Of these 81 developing countries, missing data on income inequality reduced the size of the data set used in this paper to 74 countries.

Annex Table A1 gives the countries, regions, poverty, inequality, migration and remittances indicators included in the new data set. The data set includes a total of 190 observations from the 74 developing countries; an observation is any point in time for which data on all the relevant variables exist. The data set is notable in that it includes 42 observations (from 21 countries) in Sub-Saharan Africa, a region for which migration and poverty data are relatively rare. It also includes observations from countries in all other regions of the developing world.

3. Calculation of Poverty, Inequality, Migration and Remittance Variables

Annex Table A1 reports three different poverty measures. The first, the headcount index, set at $1 per person per day, measures the percent of the population living beneath that poverty line at the time of the survey.[13] However, the headcount index ignores the "depth of poverty," that is, the amount by which the average expenditure (income) of the poor fall short of the poverty line.[14] We therefore also report the poverty gap index, which measures in percentage terms how far the average expenditure (income) of the poor fall short of the poverty line. For instance, a poverty gap of 10 percent means that the average poor person's expenditure (income) is 90 percent of the poverty line. The third poverty measure -- the squared poverty gap index – indicates the severity of poverty. The squared poverty gap index possesses useful analytical properties, because it is sensitive to changes in distribution among the poor.[15]

To measure inequality, Annex Table A1 uses the Gini coefficient. In the table this measure is normalized by household size and the distributions are weighted by household size so that a given quintile (such as the lowest quintile) has the same share of population as other quintiles across the sample.

The remaining variables in Annex Table A1 – migration as share of country population and remittances as share of country GDP – are of key importance to this study. Since these two variables must be estimated using some rather heroic assumptions, it is crucial to discuss each variable in turn.

In the absence of detailed records on international migration in the labor-exporting countries, the migration variable in this study is estimated by combining data from the two main labor-receiving regions of the world: the United States and OECD

(Europe). Specifically, the migration variable is constructed using three steps. The first step uses data from the 1990 and 2000 U.S. Population Censuses on the "place of birth for the foreign-born population." While these data are disaggregated by country of birth for about 50 different labor-exporting countries, it is not at all clear whether all of these "foreign-born" people are, in fact international migrants. For example, a person born in Mexico and brought to the United States as an infant would probably not consider himself as a migrant. Moreover, it is also not clear how many of those who enter the United States illegally are, in fact, included in the "foreign-born" population figures. As some observers have suggested, the U.S. Census data may be grossly undercounting the actual migrant population that is living – legally or illegally – in the United States.[16]

The second step in calculating the migration variable is to estimate the number of "foreign born" living in the Organization for Economic Cooperation and Development (OECD) (Europe), excluding North America and Asia.[17] Unfortunately, the OECD (Europe) data are not as detailed as the U.S. Census data, and differ from the United States data in several key ways. Most basically, the OECD (Europe) data use a different way of classifying immigrants. Since United States-born children of immigrants have US citizenship, the United States defines an immigrant as a person who was born abroad to non-US citizens. Most OECD (Europe) countries, however, follow an ethnicity-based definition of immigration status. This method classifies a person on the basis of the ethnicity of the parent, rather than on place of birth. Thus, a child of Turkish parents born in Germany is typically classified as an immigrant. This different way of classifying immigrants has the net effect of increasing the stock of immigrants in any particular OECD (Europe) country, and perhaps biasing our estimates by including a

number of "migrants" who were actually born, raised and educated in that OECD (Europe) country. Another key difference between the OECD (Europe) data and the United States data has to do with the number of labor-exporting countries recorded. While the U.S. Census data can be used to count the number of "foreign-born" (or migrants) from about 50 different countries, the OECD (Europe) data only record the number of "foreign-born" (or migrants) in each European country coming from ten or fifteen countries. While this is not a significant problem for large-labor exporting countries (like Turkey), which send many migrants to Europe, it is a problem for smaller labor-exporting countries, like Brazil or Sri Lanka, where the actual number of migrants to any particular European country might not be recorded at all.

The final step in calculating the migration variable is to take the sum of the "foreign born" from each labor-exporting country that are living in either the United States or the OECD (Europe), and divide this sum by the population of each developing country. These "migration as share of population" figures are the ones which appear in Annex Table A1. In all likelihood, these figures seriously under-estimate the actual number of international migrants produced by any given labor-exporting country, because they do not include the large number of illegal migrants working in the United States and OECD (Europe). These figures also do not count the unknown number of international migrants working in other labor-receiving regions (like the Arab Gulf).

The process of calculating the remittances variable in Annex Table A1 is more straight-forward, but it also involves one heroic assumption. All remittance data comes from the IMF, Balance of Payments Statistics Yearbook. As noted above, the main problem with these data is that they count only remittance monies which enter through

official, banking channels; they do not include the large (and unknown) amount of remittance monies which are sent home through private, unofficial channels. For example, in one major labor-exporting country – Egypt – it has been estimated that unofficial remittances amount to between one-third and one-half of total official remittances.[18] For this reason, it is likely that the "official remittance" figures recorded in Annex Table A1 are gross under-estimates of the actual level of remittances (official and unofficial) entering each labor-exporting county.

4. Migration, Remittances and Poverty Reduction: Econometric Model and Results

In this section we use the cross-country data to analyze how international migration and remittances affect poverty in the developing world. Using the basic growth-poverty model suggested by Martin Ravallion and Shaohua Chen,[19] the relationship that we want to estimate can be written as

$$\text{Log } P_{it} = \alpha_i + \beta_1 \log \mu_{it} + \beta_2 \log (g_{it}) + \beta_3 \log (x_{it}) + \varepsilon_{it} \qquad (1)$$
$$(i = 1, \ldots, N;\ t = 1, \ldots, T_i)$$

Where P is the measure of poverty in country *i* at time *t*, β_1 is the "elasticity of poverty" with respect to mean per capita income given by μ, β_2 is the elasticity of poverty with respect to income distribution given by *g*, β_3 is the elasticity of poverty with respect to variable x (such as international migration or remittances) and ε is an error term that includes errors in the poverty measure.

The income variable in equation (1) can be measured in two different ways: (1) per capita GDP, in purchasing power parity (PPP) units, as measured from national accounts data; and (2) per capita survey mean income (expenditure), as calculated from household budget surveys done in the various developing countries. As Angus Deaton

and others have shown,[20] these two measures of income typically do not agree. Income (expenditure) as measured by household surveys is calculated from the responses of individual households. However, income as measured by GDP data comes from the national accounts, which measure household income as a residual item, so that errors and omission elsewhere in the accounts automatically affect the calculation of household income (expenditure). Since the national accounts data also include many items (such as the expenditures of nonprofit organizations and the imputed rent of owner-occupied dwellings) which are not included in the household surveys, it is little wonder that the two measures of income do not correspond.

For the purposes of this study, we will use estimate equation (1) using both measures of income. This will allow us to test the robustness of our findings to different definitions of income.

In the literature equation (1) is often measured in first differences, in order to deal with possible correlation problems between the variables, since the dependent and independent variables are drawn from the same single source of data (household budget surveys). In this study, however, we will estimate equation (1) as a level equation since the dependent and independent variables come from different sources of data: the dependent variable being drawn from household budget surveys and the independent variables (for migration and remittances) from various other sources.[21]

Using the migration data, OLS estimates of equation (1) are presented in Table 1. Since all of the variables are estimated in log terms, the results can be interpreted as elasticities of poverty with respect to the relevant variable.

In Table 1 the coefficients for both of the income variables – GDP and survey mean income-- are of the expected (negative) sign and statistically significant in all cases. However, the results for the model as a whole are better and more precise when estimated using survey mean income: the R^2 coefficients increase from the 0.4-0.5 range to 0.6-0.7. For this reason, we will focus on the results using survey mean income.

In Table 1 the poverty elasticities with respect to income inequality (Gini coefficient) are positive, as expected, and their magnitude is consistent with other recent analyses of poverty reduction.[22] The latter outcome suggests that countries with higher income inequality also have higher poverty.

When the dependent variable in Table 1 is poverty headcount or poverty gap, the results for the migration variable are negative and statistically significant. However, when the dependent variable is squared poverty gap, the share of migrants in the country's population has no significant impact on poverty. For the poverty headcount measure, the estimates using survey mean income suggest that, on average, a 10 percent increase in the share of migrants in the country's population will lead to a 1.9 percent decline in the share of people living on less than $1.00 per person per day. This means that for a "representative" country if exactly one-half of the population lives below the poverty line of $1.00/person/day, a 10 percent increase in migration will bring the proportion living in poverty down to about 0.49, holding the level and distribution of income constant. International migration has a small, but statistically significant impact on poverty reduction, independent of the level of income and its distribution.

Table 2 shows the results when equation (1) is estimated using remittances data. The remittances variable – remittances as share of country GDP – has a negative and

significant impact on all three measures of poverty: headcount, poverty gap and squared poverty gap. As was the case with the migration model, the size of the elasticity of poverty with respect to remittances is small. On average, the point estimates for the poverty headcount measure using survey mean income suggest that a 10 percent increase in the share of remittances in country GDP will lead to a 1.6 percent decline in the share of people living on less than $1.00 per person per day. Controlling for the level of income and income inequality, the more sensitive poverty measures – the poverty gap and squared poverty gap – suggest that international remittances will have a slightly larger impact on poverty reduction. The point estimates for the poverty gap and squared poverty gap suggest that, on average, a 10 percent increase in the share of remittances will lead to about a 2.0 percent decline in the depth and/or severity of poverty.

It is useful to speculate on the reasons why international migration and remittances have such a small – albeit statistically significant – impact on poverty reduction. As noted at the outset, both of these variables are probably underestimated with respect to their true values. The variable "migrants as a share of country population" is underestimated because it does not include the large number of people who illegally migrate to the United States or the OECD (Europe); also, this variable does not include the large number of migrants who go to work in other labor-receiving regions (like the Arab Gulf or South Africa). Similarly, the variable "remittances as share of country GDP" does not include the large (and unknown) amount of money that is remitted through private, unofficial channels. Since workers who migrate illegally are more likely to be poor and to remit through unofficial channels, it is likely that the variables used in this study underestimate the true impact of international migration and

remittances on poverty in labor-exporting countries. If, in the future, it would be possible to get more accurate estimates of the number of legal and illegal migrants, and their official and unofficial remittances, it is likely that international migration and remittances would have an even stronger statistical impact on poverty reduction in the developing world.

Data problems notwithstanding, the results provide an intriguing puzzle and point to an important area for future work. Remittance flows can be treated analytically in the same way as any other increase in national income. Their poverty reducing impact derives from two sources: first, from an increase in per capita GDP or survey mean income (given the distribution of income); and second, from any contemporaneous change in the distribution of income that occurs as a result of the receipt of remittances by different income groups. If the distributional bias of remittance income to households is progressive, the poverty reducing impact of the increase in income will be greater than if the distribution had remained unchanged. A regressive bias will result in the opposite outcome.

In our econometric specifications we control for the level of per capita income and for its distribution. Yet we still find a significant *independent* poverty reducing impact of both migration and (more convincingly) remittances on the poverty headcount as well as some measures of depth and severity. Put another way, perhaps rather than express surprise at the small magnitudes of the elasticity of poverty reduction with respect to the migration and remittance variables, we should be surprised that they are significant at all. Is there a "third channel" by which incomes remitted affect the level and severity of poverty in developing countries?

Our data do not permit us to move beyond speculation. But, one conjecture, at least, is consistent with the data. Because the distributional data change with less frequency than the poverty and income data, the migration and remittance variables may be picking up the effect of a progressive bias in the distribution of remittance income among households. In this case, while the main channel by which remittances reduce poverty is via the income variable, their distributional impact is captured by the independent migration/remittances variable. The fact that in the case of the poverty gap and the squared poverty gap the elasticity of the measure with respect to remittances is greater than for the headcount may lead some credence to this hypothesis.

4. Determinants of International Migration and Remittances

Since international migration and remittances reduce poverty in our full sample of developing countries, it is useful to explore the determinants of migration. In the literature the determinants of international migration are often analyzed using the type of gravity model suggested by M. Greenwood and George Borjas.[23] In general terms, such a model can be expressed as:

$$M_{ij} = \alpha_0 + \alpha_1 p_i + \alpha_2 y_i + \alpha_3 c_{ij} + \varepsilon_{ij} \quad (i = 1, \ldots, N; j = 1, \ldots, N) \quad (2)$$

Where M_{ij} is the migration flow between labor-exporting country i and labor-receiving region j,[24] p_i is the population of labor-exporting country i, y_i is the per capita income of labor-exporting country i, c_{ij} is the costs of migrating from country i to j, and ε is an error term.

Unfortunately, equation (2) cannot be estimated because our data set contains no information on the costs of migration (c_{ij}). Since this problem is also common to other

empirical studies, a typical solution is to use the shortest air distance between labor-exporting and labor–receiving countries as a proxy variable.[25] This is the solution that will be adopted here: the costs of migrating will be measured by the air distance from the labor-exporting country to one of three labor-receiving regions (United States, OECD (Europe) or the Arab Gulf).

In addition to the three explanatory variables listed in equation (2) – population, income and migration costs – recent empirical work has suggested that other economic, demographic and political variables may also influence the decision to migrate.[26] From an economic standpoint, it is useful to enter both an income variable and its square in the equation to see if the propensity to migrate rises and then declines with level of country income (development). Some studies have also hypothesized that other economic variables – such as higher rates of income inequality, inflation and unemployment – tend to encourage migration from labor-exporting countries.[27] With respect to demographic factors, human capital theory argues that more educated people are more likely to migrate because they enjoy higher wage-earning opportunities in labor-receiving countries.[28] Finally, policy variables – such as the level of government stability and a country's credit worthiness – may have an effect on migration.[29] The reasoning here is that people will be more likely to migrate from countries that are politically unstable or that have poor economic management as manifested by low international credit ratings.

Combining all of these variables together, the empirical version of the migration model to be estimated can be written as:

$$\text{Log } M_{ij} = \lambda_0 + \lambda_1 \log(d_{ij}) + \lambda_2 \log(g_i) + \lambda_3 \log(y_i) + \lambda_4 \log(y_i)^2 + \lambda_5 \log(rf_i)$$
$$+ \lambda_6 \log(ru_i) + \lambda_7 \log(p_i) + \lambda_8 \log(ed_i) + \lambda_9 \log(gov_i) + \lambda_{10} \log(cr_i)$$

$$+ \varepsilon_{ij} \ (i = 1, \ldots, N; j = 1, \ldots, N) \qquad (3)$$

Where d_{ij} is the distance between labor-exporting country i and labor-receiving region j, and for each labor-exporting country i, *g* is the level of income inequality (measured by the Gini coefficient), *y* is income (measured by per capita GDP), *rf* is the rate of consumer inflation, *ru* is the rate of unemployment, *p* is the population density (people per square kilometer), *ed* is the share of the population over 25 years with a secondary education, *gov* is a measure of government stability,[30] and *cr* is the country's credit rating.[31]

In estimating equation (3) all of the variables are expressed in log terms. This means that the results can be interpreted as elasticities. Table 3 lists all of the variables and their descriptive statistics.

Equation (3) is estimated in a stepwise manner for each group of variables. Since the propensity to migrate might vary by geographical region, dummy variables (not shown) are added to the model for the various regions. The results are reported in Table 4.

The first, and most important, result concerns the distance variable. In all versions of the model the coefficient for distance is negatively and significantly related to migration. On average, a 10 percent increase in distance to a labor-receiving region will reduce the share of international migration from a country by between 9.5 and 15.3 percent.

This result, which is based on flows of *legal* migration between countries, parallels those of other studies.[32] It also accords with reality because a quick glance at Annex Table A1 shows that those countries which are closest to the United States – like

Mexico and Jamaica -- and the OECD (Europe) – like Morocco and Turkey -- are also those countries which have the highest rates of international migration. All other things being constant, citizens of countries which are located close to major labor-receiving regions have a higher propensity to migrate because their costs of migration are lower.

Only two of the economic variables in Table 4 are significantly related with international migration: income inequality (Gini coefficient) and per capita GDP (and its square). The Gini coefficient is positively related to migration, which means that countries with higher levels of income inequality produce a larger share of international migrants. On average, a 10 percent increase in the Gini coefficient will raise the share of migration between 15.2 and 24.5 percent. At first glance, these elasticities appear to be quite large, but it is important to remember that a 10 percent change in the Gini coefficient is unusual. On the whole, Gini coefficients tend to be fairly stable over time.[33]

The statistically significant results for the per capita GDP variable (and its square) are instructive and suggest that an inverted U-shaped curve exists between the level of country income (development) and international migration.[34] In other words, developing countries with low or high per capita GDP incomes produce smaller shares of international migrants than do middle-income developing countries. In the data set the share of international migration in a country's population increases until a country has a per capita GDP income (in 1995 prices) of $1630,[35] and falls thereafter. This result, which has been observed elsewhere,[36] suggests that people from middle-income developing countries have a higher propensity to migrate because they are able to afford the travel costs associated with international migration, while people from higher-income

developing countries lack the incentive to go work abroad. At the same time, people from low-income countries – like those in Sub-Saharan Africa – lack the financial means to become international migrants. [37]

Since the focus of this study is on international migration and poverty, it is instructive to replace the per capita GDP variable (and its square) in Table 4 with a poverty variable (headcount index of poverty) (and its square) and to re-estimate the equations. [38] This is done in equations 4(3), 4(5) and 4(7). The results show that the poverty variable is *never* statistically significant. In other words, while international migration statistically reduces the level of poverty in developing countries (Table 1), the headcount index of poverty has no systematic relationship with the share of international migrants produced by countries. One possible explanation for this apparent inconsistency is as follows. Because of the considerable travel costs associated with international migration, it is possible that international migrants come mainly from those income groups which are located above the poverty line,[39] and that their remittances – sent to poor family members at home—have the effect of reducing poverty in labor-exporting countries.

Both of the demographic variables in Table 4 – population density and share of population with high school education – are positively and significantly related to migration. The first outcome is sensible because it means that more populated countries also produce larger shares of migrants. The latter outcome is in accord with human capital theory, which suggests that more educated people – in this case, people with a secondary education -- are more likely to migrate because they enjoy higher wage-earning opportunities working abroad.[40]

The final variable which is statistically significant in Table 4 is country credit rating, which is negatively related to international migration. This result means that countries with a higher (i.e. better) credit rating produce a lower share of international migrants. One way to interpret this finding is that countries with better macro-economic management are able to achieve a higher credit rating in the international marketplace. This in turn enables them to attract more foreign and domestic capital to create more jobs at home and reduce the need (incentive) for people to migrate abroad.

6. Conclusion

This paper has used a new data set of 74 low- and middle-income developing countries to examine the impact of international migration and remittances on poverty. Five key findings emerge.

First, international migration – defined as the share of a country's population that is living abroad – has a strong, statistical impact on reducing poverty in the developing world. On average, a 10 percent increase in the share of international migrants in a country's population will lead to a 1.9 percent decline in the share of people living on less than $1.00 per person per day.

Second, as might be expected, distance to a major labor-receiving region (the United States, OECD (Europe) or Arab Gulf) has an important effect on the level of international migration. On average, the results suggest that a 10 percent increase in a country's distance to a major labor-receiving region will reduce the share of migration from that country by between 9.5 and 15.3 percent. This result is sensible because those countries which are located closest to the United States – like Mexico and Jamaica – and

the OECD (Europe) – like Morocco and Turkey – are also those countries with the highest rates of international migration.

Third, an inverted U-shaped curve exists between the level of country per capita income and international migration. Developing countries with low or high per capita GDP produce smaller shares of international migrants than middle-income developing countries. People from low-income developing countries – like Sub-Saharan Africa – lack the financial means to become international migrants, while people from higher-income developing countries lack the incentive to go work abroad. At the same time, countries with higher levels of poverty ($1.00/person/day) do *not* produce more migrants. This study finds no statistical relationship between the level of poverty headcount in a country and the share of international migration. When coupled together, these findings suggest that international migrants do not come from the poorest strata of either countries or society: because of the considerable travel costs associated with international migration, international migrants appear to come from those income groups in middle-income developing countries which are located above the poverty line. These "almost poor" people are pushed into international migration through a desire to improve what Oded Stark calls their "status of relative deprivation" vis-à-vis the rich.[41] More work is needed to clarify how these forces affect the propensity of people to migrate.

Fourth, this study finds that international remittances – defined as the share of remittances in country GDP – has a negative and statistically significant effect on all three poverty measures used in the analysis. On average, the point estimates for the poverty headcount measure suggest that a 10 percent increase in the share of remittances in country GDP will lead to a 1.6 percent decline in the share of people living on less

than $1.00 per person per day. However, the more sensitive poverty measures – the poverty gap and squared poverty gap – suggest that international remittances will have a slightly larger impact on poverty reduction. The point estimates for the poverty gap and squared poverty gap suggest that a 10 percent increase in the share of remittances will lead to about a 2.0 percent decline in the depth and/or severity of poverty in the developing world. While international migrants do not come from the ranks of the poor, the income that migrants remit to their origin communities appears to both increase average income and to reduce both the incidence and severity of poverty.

The final finding is more of a plea than a conclusion. From the standpoint of future work on this topic, more attention needs to be paid to collecting and publishing better data on international migration and remittances. With respect to migration, it would be useful if developing countries would start publishing records on the number and destination of their international migrants. In many developing countries, these data are already being collected, but they are not being published. With respect to international remittances, the International Monetary Fund should make greater efforts to count the amount of remittance monies that are transmitted through private, unofficial channels. Poor people, especially poor people from countries located near the major labor-receiving regions of the world, are more likely to remit through informal, unofficial channels. For this reason, a full and complete accounting of the impact of the remittances on poverty in the developing world needs more accurate data on the large and currently unknown level of unofficial remittance transfers.

Notes

[1] Dilip Ratha, "Workers Remittances: An Important and Stable Source of External Development Finance," in World Bank, Global Development Finance (Washington, DC: 2003), p. 157.

[2] See, for example, Richard Adams, Jr., The Effects of International Remittances on Poverty, Inequality and Development in Rural Egypt, Research Report 86, (Washington, DC: International Food Policy Research Institute, 1991); Oded Stark, The Migration of Labor (Cambridge: Harvard University Press, 1991); Bjorn Gustafsson and Negatu Makonnen, "Poverty and Remittances in Lesotho, Journal of African Economies 2:1 (March 1993): 49-73; Richard Adams, Jr., "The Economic and Demographic Determinants of Migration in Rural Egypt," Journal of Development Studies 30:1 (October 1993): 146-157; and J. Edward Taylor, Carol Zabin and Kay Eckhoff, "Migration and Rural Development in El-Salvador: A Micro-Economywide Perspective," North American Journal of Economics and Finance 10:1 (1999): 91-114.

[3]Charles Stahl, "Labor Emigration and Economic Development," International Migration Review 16 (Winter 1982): 883.

[4] Michael Lipton, "Migration from Rural Areas of Poor Countries: The Impact on Rural Productivity and Income Distribution," World Development 8 (January 1980): 227.

[5] Stark, Migration of Labor, p. 140.

[6] Adams, Jr., The Effects of International Remittances on Poverty, pp. 73-74.

[7] Low income and middle income countries are those which are classified as such by the World Bank in the World Development Report, 2000/01 (Washington, DC), p. 334. Low income includes countries with 1999 GNP per capita $756 or less; middle-income includes countries with 1999 GNP per capita of $756 to $9,265.

[8] In line with other cross-national studies of poverty, 1980 was selected as a cutoff point because the poverty data prior to that year are far less comprehensive. See, for example, Martin Ravallion and Shaohua Chen, "What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty," World Bank Economic Review 11:2 (May 1997): 357-382; and Richard Adams, Jr., Economic Growth, Inequality and Poverty: Findings from a New Data Set, World Bank Research Working Paper 2972, Washington, DC, February 2003.

[9] For the purposes of this study, OECD (Europe) includes 21 countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxemburg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland and United Kingdom.

[10] The International Monetary Fund (IMF) records annual flow in international remittances in its publication, Balance of Payments Statistics Yearbook (Washington, DC).

[11] A recent IMF study estimated that informal transfers of remittance monies currently amount to $10 billion per annum. See Mohammed el-Qorchi, Samuel Maimbo and John Wilson, "The Hawala Informal Funds Transfer System: An Economic and Regulatory Analysis," unpublished paper, International Monetary Fund, Washington, DC, August 2002, p. 64.

[12] For a full list of these 157 developing countries, see World Bank, World Development Report, 2000/01 (Washington, DC), p. 334.

[13] To ensure compatibility across countries, all of the poverty lines in Annex Table A1 are international poverty lines, set at estimates of $1.08 per person per day in 1993 purchasing power parity (PPP) exchange rates. The PPP exchange rates are used so that $1.08 is worth roughly the same in all countries. PPP values are calculated by pricing a representative bundle of goods in each country and comparing the local cost of that bundle with the U.S. dollar cost of the same bundle. In calculating PPP values, the comparison of local costs with U.S. costs is done using conversion estimates produced by the World Bank.

[14] In this paper the terms "expenditure" and "income" are used interchangeably.

[15] While a transfer of expenditures from a poor person to a poorer person will not change the headcount index or the poverty gap index, it will decrease the squared poverty gap index.

[16] In 1992 the stock of illegal immigrants in the United States was estimated at 3.4 million, or about 16 percent of the stock of the "foreign-born" population. See George Borjas, "The Economic Benefits from Immigration," Journal of Economic Perspectives 9:2 (Spring 1995): 14.

[17] All of the data on the "foreign-born" population living in the OECD (Europe) comes from Organization for Economic Cooperation and Development (OECD), Trends in International Migration (Paris, various issues).

[18] Adams, Jr., The Effects of International Remittances on Poverty, p. 13.

[19] Ravallion and Chen, pp. 360-361.

[20] Angus Deaton, "Counting the World's Poor: Problems and Possible Solutions," World Bank Research Observer 16: 2 (Fall 2001): 125-147. See also Adams, Jr., Economic Growth, Inequality and Poverty.

[21] When equation (1) is estimated in first differences, neither of the variables of concern – migration as share of country population and remittances as share of country GDP – are statistically significant. Two possible reasons can be cited for this outcome. First, neither the migration nor the remittances variable show much variation over time. Second, in taking first differences, there is an increase in the noise-to-signal ratio (the ratio of measurement error to information) and it is likely that this increase in noise leads to the estimation of less precise coefficients for the migration and remittances variables.

[22] Martin Ravallion, "Can High-Inequality Developing Countries Escape Absolute Poverty?" Economics Letters 56 (September 1997): 51-57; and Adams, Jr., Economic Growth, Inequality and Poverty, p. 13.

[23] M. Greenwood, "Research on National Migration in the United States: A Survey," Journal of Economic Literature 13 (June 1975): 397-433; George Borjas, "Self-Selection and the Earnings of Immigrants," American Economic Review 77:4 (September 1987): 531-553; and George Borjas, "Economic Theory and International Migration," International Migration Review 23:3 (Fall 1989): 457-485.

[24] In equation (2), migration flow is measured as the share of migrants in labor-exporting country i that is moving to labor-receiving region j.

[25] Borjas, "Self-Selection and Earnings of Immigrants," p. 545-547.

[26] David Karemera, Victor Oguledo and Bobby Davis, "A Gravity Model Analysis of International Migration to North America," Applied Economics 32:13 (2000): 1745-1755; Michael Vogler and Ralph Rotte, "The Effects of Development on Migration: Theoretical Issues and New Empirical Evidence," Journal of Population Economics 13: 3 (2000); 485-508; and Timothy Hatton and Jeffrey Williamson, "What Fundamentals Drive World Migration?" Wider Discussion Paper No. 2003/23 (Helsinki, Finland: 2003).

[27] Borjas, "Economic Theory and International Migration."

[28] John Harris and Michael Todaro, "Migration, Unemployment and Development: A Two-Sector Analysis," American Economic Review 60:3 (1970): 126-142.

[29] Timothy Krayenbuehl, Country Risk: Assessment and Monitoring (Cambridge, MA: Woodhead-Faulkner, 1988); and Karemera, et al., "A Gravity Model Analysis."

[30]Government stability is measured by ratings published on a monthly basis by the PRS Group in the International Country Risk Guide. These ratings for "government stability" have a scale of zero to 12, with zero representing those countries with "very unstable government" to 11 representing those with "very stable government." For instance, in June 2000 the United States had a "government stability" rating of 11, while Poland had a rating of 6.

[31]The journal, International Investor, publishes annual ratings of countries' credit ratings. These ratings have a scale of zero to 100, with zero representing those countries that are least credit worthy and 100 representing those that are most credit worthy. For example, in the year 2000 Switzerland had the highest country credit rating (93.8), while Afghanistan had the lowest (5.7).

[32] See, for example, Karemera et al., "A Gravity Model Analysis," p. 1750; Vogler and Rotte, "Effects of Development on Migration," p. 502-503; and Hatton and Williamson, "What Fundamentals Drive World Migration?," p. 11.

[33] In a recent study of 50 developing countries using data from 1980 to present Adams found that income inequality (measured by the Gini coefficient) rises on average less than 1.0 percent per year. See Adams, Jr., Economic Growth, Inequality and Poverty, pp. 13, 20.

[34] Identical results are obtained if the per capita GDP variable (and its square) are replaced by per capita survey mean income (and its square). The coefficient for survey mean income is positive and significant, and the coefficient for the squared term is negative and significant.

[35] According to the World Bank, a country with a per capita GDP income of $1630 is classified as "lower middle income." See World Bank, World Development Report 2000/01, p. 335.

[36]Vogler and Rotte, "Effects of Development on Migration," p. 495; and Timothy Hatton and Jeffrey Williamson, The Age of Mass Migration: Causes and Economic Impact (New York: Oxford University Press, 1998), Chapter 3.

[37] On this point, Hatton and Williamson observe that Sub-Saharan Africa has "generated remarkably few (international) migrants" to the major labor-receiving regions because the vast bulk of migration in Africa is within Africa and not abroad. See Hatton and Williamson, "What Fundamentals Drive World Migration?," pp. 13-14.

[38]In the data set these two variables – log per capita GDP and log poverty headcount -- are highly correlated (-0.538), and so when they are both entered into the equations neither one of them is statistically significant.

[39] Adams, Jr. provides some support for this hypothesis when he finds that the relationship between income and international migration in rural Egypt is an inverted U-shaped curve, with middle-income males having the highest propensity to migrate. See Adams, Jr., "Economic and Demographic Determinants of International Migration in Rural Egypt," p. 164.

[40] For similar findings, see Richard Adams, Jr., International Migration, Remittances and the Brain Drain: A Study of 24 Labor-Exporting Countries, World Bank Policy Research Working Paper 3069, Washington, DC, June 2003, pp. 11-16.

[41] Stark, Migration of Labor, p. 142-149.

Table 1. Elasticity of Poverty, Estimated Using International Migration Data

Variable	Dependent Variable = Poverty Headcount ($1.08/person/day)		Dependent Variable = Poverty Gap		Dependent Variable = Squared Poverty Gap	
	(1)	(2)	(3)	(4)	(5)	(6)
Per capita GDP (constant 1995 dollars)	-1.178 (-8.84)**		-1.349 (-8.82)**		-1.417 (-7.51)**	
Per capita survey mean income (expenditure)		-2.336 (-16.85)**		-2.623 (-15.24)**		-2.660 (-11.49)**
Gini coefficient	3.396 (6.88)**	4.025 (12.08)**	4.170 (7.89)**	4.798 (11.60)**	4.600 (6.88)**	5.002 (9.29)**
Migrants as share of country Population[1]	-0.156 (-2.49)**	-0.188 (-4.48)**	-0.120 (-1.68)*	-0.153 (-2.93)**	-0.029 (-0.27)	-0.048 (-0.69)
Constant	13.549 (10.94)**	16.273 (19.75)**	14.089 (9.96)**	17.397 (16.55)**	14.021 (8.03)**	16.827 (12.03)**
N	109	106	109	106	106	100
Adj R^2	0.494	0.767	0.481	0.722	0.399	0.598
F-Statistic	36.11	116.09	34.41	92.0	22.91	50.12

Notes: Estimates obtained using ordinary least squares. All variables expressed in logs. T-ratios shown in parenthesis. Number of observations reduced for certain equations because of missing values. See Annex Table A1 for countries and survey dates.

[1] Migrants measured as number of immigrants from country recorded as living in the United States or OECD (Europe).

* Significant at the 0.10 level.
** Significant at the 0.05 level.

Table 2. Elasticity of Poverty, Estimated Using International Remittance Data

Variable	Dependent Variable = Poverty Headcount ($1.08/person/day)		Dependent Variable = Poverty Gap		Dependent Variable = Squared Poverty Gap	
	(1)	(2)	(3)	(4)	(5)	(6)
Per capita GDP (constant 1995 dollars)	-1.197 (-9.10)**		-1.432 (-9.67)**		-1.416 (-8.77)**	
Per capita survey mean income (expenditure)		-2.278 (-16.85)**		-2.652 (-15.90)**		-2.534 (-14.05)**
Gini coefficient	2.845 (5.56)**	3.256 (9.38)**	4.167 (7.22)**	4.641 (10.84)**	4.760 (7.76)**	5.053 (11.05)**
Remittances as share of country GDP	-0.116 (-1.98)*	-0.160 (-3.64)**	-0.205 (-3.11)**	-0.172 (-3.18)**	-0.214 (-2.88)**	-0.211 (-3.68)**
Constant	13.144 (11.12)**	15.786 (19.47)**	14.611 (10.99)**	17.396 (17.39)**	14.130 (9.75)**	16.342 (15.21)**
N	104	99	104	99	93	92
Adj R^2	0.443	0.746	0.499	0.733	0.517	0.722
F-Statistic	28.29	97.23	35.19	90.77	33.84	79.94

Notes: Estimates obtained using ordinary least squares. All variables expressed in logs. T-ratios shown in parenthesis. Number of observations reduced in table because of missing values. See Annex Table A1 for countries and survey dates.
* Significant at the 0.10 level.
** Significant at the 0.05 level.

Table 3. Variables and Descriptive Statistics for Determinants of International Migration

Variable	Mean (Standard Deviation)
Distance (miles) from country to labor-receiving region (US, OECD or Arab Gulf)	7.25 (1.04)
Economic variables	
Gini coefficient	-0.92 (0.28)
Per capita GDP (constant 1995 dollars)	6.98 (0.97)
Poverty headcount ($1/person/day)	2.37 (1.54)
Rate of consumer inflation	2.91 (1.34)
Rate of unemployment in labor force	2.08 (0.79)
Demographic variables	
Population density (people per sq km)	3.88 (1.20)
Share of population over age 25 with secondary education	1.99 (0.87)
Political, Financial variables	
Government stability	1.74 (0.34)
Country credit rating	3.22 (0.48)

Notes: All variables expressed in logs.

Sources: All poverty and inequality data from Annex Table A1. Data on per capita GDP, consumer inflation, unemployment, population density, and secondary education from World Bank, SIMA database. Government stability data from PRS Group, International Country Risk Guide. Country credit ratings from International Investor.

Table 4. Estimating the Determinants of International Migration

	Dependent Variable = Migrants as Share of Country Population						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance (miles) from country to labor-receiving region (US, OECD or Arab Gulf)	-1.171 (-6.88)**	-1.406 (-6.99)**	-1.535 (-6.00)**	-0.985 (-4.86)**	-1.045 (4.13)**	-0.952 (-4.86)**	-1.006 (-4.13)**
Economic variables							
Gini coefficient		1.008 (1.39)	0.050 (0.05)	2.313 (3.37)**	1.518 (1.81)*	2.447 (3.68)**	2.058 (2.53)*
Per capita GDP (constant 1995 dollars)		16.963 (4.51)**		14.498 (4.00)**		13.133 (3.68)**	
Per capita GDP^2		-1.183 (-4.60)**		-1.004 (-4.08)**		-0.892 (-3.70)**	
Poverty headcount ($1/person/day)			0.123 (0.72)		0.289 (1.70)		0.225 (1.44)
Poverty headcount^2			-0.035 (-0.73)		-0.050 (-1.12)		-0.063 (-1.39)
Rate of consumer inflation		-0.111 (-1.27)	-0.186 (-1.80)*	-0.047 (-0.59)	-0.071 (-0.76)	-0.073 (-0.95)	-0.076 (-0.86)
Rate of unemployment in labor force		-0.004 (-0.002)	0.360 (1.60)	-0.119 -(0.64)	0.166 (0.78)	-0.123 (-0.66)	0.115 (0.55)
Demographic variables							
Population density (people per sq km)				0.777 (5.08)**	0.880 (5.20)**	0.783 (4.99)**	0.852 (4.96)**
Share of population over age 25 with secondary education				0.614 (2.57)**	0.829 (3.20)**	0.581 (2.49)**	0.754 (3.00)**
Political, Financial variables							
Government stability						0.419 (1.36)	0.518 (1.54)
Country credit rating						-0.595 (-1.81)*	-0.631 (-1.97)*
Constant	7.224 (5.16)**	-48.615 (-3.67)**	9.811 (3.72)**	-47.836 (-3.64)**	1.212 (0.41)	-42.804 (-3.35)**	3.270 (0.98)
N	121	94	88	91	85	88	82
Adj R^2	0.470	0.580	0.489	0.671	0.625	0.685	0.649
F-Statistic	18.75	12.68	8.56	15.15	11.79	13.66	10.99

Notes: Estimates obtained using ordinary least squares. All variables based on labor-exporting country and expressed in logs. T-ratios shown in parenthesis; coefficients for regional dummies not reposted. Number of observations reduced for certain equations because of missing values. See Annex Table A1 for countries and survey dates.

* Significant at the 0.10 level. ** Significant at the 0.05 level.

Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Algeria	1988	Middle East, North Africa	1.75	0.64	0.48	0.414	2.77	379	0.97
Algeria	1995	Middle East, North Africa	1.16	0.23	0.094	0.353	2.01	1101	2.63
Bangladesh	1984	South Asia	26.16	5.98	1.96	0.258	0.04	527	2.19
Bangladesh	1986	South Asia	21.96	3.92	1.07	0.269	0.04	497	1.9
Bangladesh	1989	South Asia	33.75	7.72	2.44	0.288	0.05	771	2.68
Bangladesh	1992	South Asia	35.86	8.77	2.98	0.282	0.06	848	2.55
Bangladesh	1996	South Asia	29.07	5.88	1.6	0.336	0.09	1217	3.16
Belarus	1988	Europe, Central Asia	0	0	0	0.227	0	0	0
Belarus	1993	Europe, Central Asia	1.06	0.13	0.03	0.216	0	0	0
Belarus	1995	Europe, Central Asia	2.27	0.71	0.46	0.287	0	29	0.27
Bolivia	1990	Latin America	11.28	2.22	0.6	0.42	0.47	2	0.03
Botswana	1985	Sub-Saharan Africa	33.3	12.53	6.09	0.542	0	0	0
Brazil	1985	Latin America	15.8	4.69	1.82	0.595	0.05	25	0.01
Brazil	1988	Latin America	18.62	6.78	3.22	0.624	0.05	19	0.01
Brazil	1993	Latin America	18.79	8.38	5.01	0.615	0.08	1123	0.17
Brazil	1995	Latin America	13.94	3.94	1.46	0.6	0.09	2891	0.41
Brazil	1997	Latin America	5.1	1.32	0.5	0.517	0.11	1324	0.17
Bulgaria	1989	Europe, Central Asia	0	0	0	0.233	0.2	0	0
Bulgaria	1992	Europe, Central Asia	0	0	0	0.308	0.2	0	0
Bulgaria	1995	Europe, Central Asia	0	0	0	0.285	0.2	0	0
Burkina Faso	1994	Sub-Saharan Africa	61.18	25.51	13.03	0.482	0	80	3.83
Central African Rep	1993	Sub-Saharan Africa	66.58	40.04	28.56	0.613	0	0	0
Chile	1987	Latin America	10.2	2.25	0.66	0.564	0.4	0	0
Chile	1990	Latin America	8.26	2.03	0.73	0.56	0.42	0	0
Chile	1992	Latin America	3.91	0.74	0.23	0.557	0.44	0	0
Chile	1994	Latin America	4.18	0.65	0.15	0.548	0.46	0	0

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Colombia	1988	Latin America	4.47	1.31	0.57	0.531	0.8	448	0.65
Colombia	1991	Latin America	2.82	0.75	0.32	0.513	0.86	866	1.14
Colombia	1995	Latin America	8.87	2.05	0.63	0.574	1.02	739	0.8
Colombia	1996	Latin America	10.99	3.16	1.21	0.571	1.06	635	0.67
Costa Rica	1986	Latin America	12.52	5.44	3.27	0.344	1.43	0	0
Costa Rica	1990	Latin America	11.08	4.19	2.37	0.456	1.41	0	0
Costa Rica	1993	Latin America	10.3	3.53	1.79	0.462	1.58	0	0
Costa Rica	1996	Latin America	9.57	3.18	1.55	0.47	1.71	122	1.03
Côte d'Ivoire	1985	Sub-Saharan Africa	4.71	0.59	0.1	0.412	0	0	0
Côte d'Ivoire	1987	Sub-Saharan Africa	3.28	0.41	0.08	0.4	0	0	0
Côte d'Ivoire	1993	Sub-Saharan Africa	9.88	1.86	0.54	0.369	0	0	0
Côte d'Ivoire	1995	Sub-Saharan Africa	12.29	2.4	0.71	0.367	0	0	0
Czech Republic	1988	Europe, Central Asia	0	0	0	0.194	1.73	0	0
Czech Republic	1993	Europe, Central Asia	0	0	0	0.266	1.53	0	0
Dominican Republic	1989	Latin America	7.73	1.51	0.42	0.504	4.89	301	2.91
Dominican Republic	1996	Latin America	3.19	0.71	0.26	0.487	7.08	914	7.13
Ecuador	1988	Latin America	24.85	10.21	5.82	0.439	1.38	0	0
Ecuador	1995	Latin America	20.21	5.77	2.27	0.437	1.92	382	2.13
Egypt	1991	Middle East, North Africa	3.97	0.53	0.13	0.35	0.15	2569	4.99
Egypt	1995	Middle East, North Africa	5.55	0.66	0.13	0.283	0.18	3279	5.45
El Salvador	1989	Latin America	25.49	13.72	10.06	0.489	9.06	228	3.39
El Salvador	1996	Latin America	25.26	10.35	5.79	0.522	11.67	1084	11.22
Estonia	1988	Europe, Central Asia	0	0	0	0.229	0	0	0
Estonia	1993	Europe, Central Asia	3.15	0.91	0.51	0.395	0	0	0
Estonia	1995	Europe, Central Asia	4.85	1.18	0.39	0.353	0	0	0
Ethiopia	1981	Sub-Saharan Africa	32.73	7.69	2.71	0.324	0.07	0	0
Ethiopia	1995	Sub-Saharan Africa	31.25	7.95	2.99	0.399	0.09	0	0

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Gambia	1992	Sub-Saharan Africa	53.69	23.27	13.28	0.478	0	0	0
Ghana	1987	Sub-Saharan Africa	47.68	16.6	7.81	0.353	0.11	1	0.02
Ghana	1989	Sub-Saharan Africa	50.44	17.71	8.36	0.359	0.12	6	0.11
Ghana	1992	Sub-Saharan Africa	45.31	13.73	5.61	0.339	0.18	7	0.12
Ghana	1999	Sub-Saharan Africa	44.81	17.28	8.71	0.327	0.32	26	0.37
Guatemala	1987	Latin America	47.04	22.47	13.63	0.582	2.09	0	0
Guatemala	1989	Latin America	39.81	19.79	12.59	0.596	2.34	69	0.59
Honduras	1989	Latin America	44.67	20.65	12.08	0.595	2.11	35	1.05
Honduras	1992	Latin America	38.98	17.74	10.4	0.545	2.74	60	1.65
Honduras	1994	Latin America	37.93	16.6	9.38	0.552	3.23	85	2.23
Honduras	1996	Latin America	40.49	17.47	9.72	0.537	3.66	128	3.12
Hungary	1989	Europe, Central Asia	0	0	0	0.233	2.02	0	0
Hungary	1993	Europe, Central Asia	0	0	0	0.279	1.75	0	0
India	1983	South Asia	52.55	16.27	NA	0.32	0.04	2311	1.25
India	1986	South Asia	47.46	13.92	NA	0.337	0.06	2105	0.99
India	1988	South Asia	47.99	13.51	NA	0.329	0.07	2402	0.98
India	1990	South Asia	45.95	12.63	NA	0.312	0.09	1875	0.68
India	1995	South Asia	46.75	12.72	NA	0.363	0.11	7685	2.17
India	1997	South Asia	44.03	11.96	NA	0.378	0.12	10688	2.7
Indonesia	1987	East Asia	28.08	6.08	1.78	0.331	0.01	86	0.07
Indonesia	1993	East Asia	14.82	2.98	0.39	0.317	0.05	346	0.2
Indonesia	1996	East Asia	7.81	0.95	0.18	0.364	0.08	796	0.39
Indonesia	1998	East Asia	26.33	5.43	1.69	0.315	0.1	959	0.4
Iran	1990	Middle East, North Africa	0.9	0.8	NA	0.434	0.63	1	0.01
Jamaica	1988	Latin America	5.02	1.38	0.67	0.431	17.03	76	1.73
Jamaica	1990	Latin America	0.62	0.03	0.01	0.418	19.07	136	2.75
Jamaica	1993	Latin America	4.52	0.86	0.29	0.379	21.8	187	3.39
Jamaica	1996	Latin America	3.15	0.73	0.32	0.364	24.4	636	11.46

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Jordan	1987	Middle East, North Africa	0	0	0	0.36	0.87	939	16.72
Jordan	1992	Middle East, North Africa	0.55	0.12	0.05	0.433	0.93	843	14.46
Jordan	1997	Middle East, North Africa	0.36	0.1	0.06	0.364	0.94	1655	23.08
Kazakhstan	1988	Europe, Central Asia	0.05	0.02	0.01	0.257	0	0	0
Kazakhstan	1993	Europe, Central Asia	1.06	0.04	0.01	0.326	0	0	0
Kazakhstan	1996	Europe, Central Asia	1.49	0.27	0.1	0.354	0	10	0.05
Kenya	1992	Sub-Saharan Africa	33.54	12.82	6.62	0.574	0	0	0
Kenya	1994	Sub-Saharan Africa	26.54	9.03	4.5	0.445	0	0	0
Kyrgyz Republic	1988	Europe, Central Asia	0	0	0	0.26	0	0	0
Kyrgyz Republic	1993	Europe, Central Asia	22.99	10.87	6.82	0.537	0	2	0.1
Kyrgyz Republic	1997	Europe, Central Asia	1.57	0.28	0.1	0.405	0	3	0.17
Latvia	1988	Europe, Central Asia	0	0	0	0.225	0	0	0
Latvia	1993	Europe, Central Asia	0	0	0	0.269	0	0	0
Latvia	1995	Europe, Central Asia	0	0	0	0.284	0	0	0
Latvia	1998	Europe, Central Asia	0.19	0.01	0	0.323	0	3	0.05
Lesotho	1987	Sub-Saharan Africa	30.34	12.66	6.85	0.56	0	0	0
Lesotho	1993	Sub-Saharan Africa	43.14	20.26	11.84	0.579	0	0	0
Lithuania	1988	Europe, Central Asia	0	0	0	0.224	0	0	0
Lithuania	1993	Europe, Central Asia	16.47	3.37	0.95	0.336	0	0	0
Lithuania	1996	Europe, Central Asia	0	0	0	0.323	0	2	0.03
Madagascar	1980	Sub-Saharan Africa	49.18	19.74	10.21	0.468	0	0	0
Madagascar	1994	Sub-Saharan Africa	60.17	24.46	12.83	0.434	0	11	0.35
Mali	1989	Sub-Saharan Africa	16.46	3.92	1.39	0.365	0	76	3.49
Mali	1994	Sub-Saharan Africa	72.29	37.38	23.06	0.505	0	103	4.43
Mauritania	1988	Sub-Saharan Africa	40.64	19.07	12.75	0.425	0	9	1.04
Mauritania	1993	Sub-Saharan Africa	49.37	17.83	8.58	0.5	0	2	0.2

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Mauritania	1995	Sub-Saharan Africa	30.98	9.99	4.59	0.389	0	5	0.47
Mexico	1984	Latin America	12.05	2.65	0.78	0.54	1.86	1127	0.47
Mexico	1989	Latin America	16.2	5.63	2.75	0.551	4.66	2213	0.87
Mexico	1992	Latin America	13.31	3.23	1.04	0.543	6.1	3070	1.07
Mexico	1995	Latin America	17.9	6.15	2.92	0.537	7.39	3673	1.28
Moldova	1988	Europe, Central Asia	0	0	0	0.241	0	0	0
Moldova	1992	Europe, Central Asia	7.31	1.32	0.32	0.344	0	0	0
Morocco	1985	Middle East, North Africa	2.04	0.7	0.5	0.392	4.38	967	3.81
Morocco	1990	Middle East, North Africa	0.14	0.02	0.01	0.392	4.02	1336	4.24
Mozambique	1996	Sub-Saharan Africa	37.85	12.02	5.42	0.396	0	0	0
Namibia	1993	Sub-Saharan Africa	34.93	13.97	6.93	0.743	0	8	0.25
Nepal	1985	South Asia	42.13	10.79	3.75	0.334	0	39	1.43
Nepal	1995	South Asia	37.68	9.74	3.71	0.387	0	101	2.3
Nicaragua	1993	Latin America	47.94	20.4	11.19	0.503	4.38	25	1.47
Niger	1993	Sub-Saharan Africa	41.73	12.43	5.29	0.361	0	13	0.74
Niger	1995	Sub-Saharan Africa	61.42	33.93	23.66	0.506	0	6	0.32
Nigeria	1997	Sub-Saharan Africa	70.24	34.91	NA	0.505	0.09	1920	6.37
Pakistan	1988	South Asia	49.63	14.85	6.03	0.333	0.11	2013	4.56
Pakistan	1991	South Asia	47.76	14.57	6.04	0.332	0.16	1848	3.62
Pakistan	1993	South Asia	33.9	8.44	3.01	0.342	0.18	1562	2.78
Pakistan	1997	South Asia	30.96	6.16	1.86	0.312	0.22	1409	2.19
Panama	1989	Latin America	16.57	7.84	4.9	0.565	3.53	14	0.25
Panama	1991	Latin America	18.9	8.87	5.48	0.568	3.55	14	0.21
Panama	1995	Latin America	14.73	6.15	3.39	0.57	3.61	16	0.2
Panama	1997	Latin America	10.31	3.15	3.67	0.485	3.67	16	0.19
Paraguay	1990	Latin America	11.05	2.47	0.8	0.397	0	43	0.56
Paraguay	1995	Latin America	19.36	8.27	4.65	0.591	0	200	2.21
Peru	1985	Latin America	1.14	0.29	0.14	0.457	0.33	0	0
Peru	1994	Latin America	9.13	2.37	0.92	0.446	0.89	472	0.96
Peru	1997	Latin America	15.49	5.38	2.81	0.462	1.03	636	1.08

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Philippines	1985	East Asia	22.78	5.32	1.66	0.41	1.26	111	0.21
Philippines	1988	East Asia	18.28	3.59	0.94	0.407	1.49	388	0.64
Philippines	1991	East Asia	15.7	2.79	0.66	0.438	1.69	329	0.49
Philippines	1994	East Asia	18.36	3.85	1.07	0.429	1.86	443	0.62
Philippines	1997	East Asia	14.4	2.85	0.75	0.461	2	1057	1.28
Poland	1987	Europe, Central Asia	0	0	0	0.255	1.89	0	0
Poland	1990	Europe, Central Asia	0.08	0.027	0.02	0.283	1.84	0	0
Poland	1992	Europe, Central Asia	0.08	0.031	0.02	0.271	1.81	0	0
Romania	1989	Europe, Central Asia	0	0	0	0.233	0.62	0	0
Romania	1992	Europe, Central Asia	0.8	0.34	0.31	0.254	0.77	0	0
Romania	1994	Europe, Central Asia	2.81	0.76	0.43	0.282	0.88	4	0.01
Russian Federation	1994	Europe, Central Asia	6.23	1.6	0.55	0.436	0.34	0	0
Russian Federation	1996	Europe, Central Asia	7.24	1.6	0.47	0.48	0.35	0	0
Russian Federation	1998	Europe, Central Asia	7.05	1.45	0.39	0.487	0.36	0	0
Senegal	1991	Sub-Saharan Africa	45.38	19.95	11.18	0.541	0	105	2.54
Senegal	1994	Sub-Saharan Africa	26.26	7.04	2.73	0.412	0	73	1.71
Sierra Leone	1989	Sub-Saharan Africa	56.81	40.45	33.8	0.628	0.18	0	0
South Africa	1993	Sub-Saharan Africa	11.47	1.83	0.38	0.593	0.14	0	0
Sri Lanka	1985	South Asia	9.39	1.69	0.5	0.324	0.06	292	3.45
Sri Lanka	1990	South Asia	3.82	0.67	0.23	0.301	0.12	401	4
Sri Lanka	1995	South Asia	6.56	1	0.26	0.343	0.3	790	6.06
Tanzania	1991	Sub-Saharan Africa	48.54	24.42	15.4	0.59	0	0	0
Tanzania	1993	Sub-Saharan Africa	19.89	4.77	1.66	0.381	0	0	0
Thailand	1988	East Asia	25.91	7.36	2.73	0.438	0.17	0	0
Thailand	1992	East Asia	6.02	0.48	0.05	0.462	0.21	0	0
Thailand	1996	East Asia	2.2	0.14	0.01	0.434	0.24	0	0
Thailand	1998	East Asia	0	0	0	0.413	0.25	0	0
Trinidad, Tobago	1992	Latin America	12.36	3.48	NA	0.402	10.5	6	0.12
Tunisia	1985	Middle East, North Africa	1.67	0.34	0.13	0.434	3.12	271	2.11

cont. Annex Table A1. Summary of Data Set on Poverty, Inequality, International Migration and Remittances

Country	Survey Year	Region	Poverty Headcount ($1/person/ day)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Co-efficient	Migration as Share of Country Population	Official Remittances (million dollars)	Official Remittances as Share of GDP (constant 1995 dollars)
Tunisia	1990	Middle East, North Africa	1.26	0.33	0.16	0.402	3.01	551	3.71
Turkey	1987	Europe, Central Asia	1.49	0.36	0.17	0.435	4.18	2021	1.56
Turkey	1994	Europe, Central Asia	2.35	0.55	0.24	0.415	4.13	2627	1.66
Turkmenistan	1988	Europe, Central Asia	0	0	0	0.264	0	0	0
Turkmenistan	1993	Europe, Central Asia	20.92	5.69	2.1	0.357	0	0	0
Uganda	1989	Sub-Saharan Africa	39.17	14.99	7.57	0.443	0	0	0
Uganda	1993	Sub-Saharan Africa	36.7	11.44	5	0.391	0	0	0
Ukraine	1989	Europe, Central Asia	0	0	0	0.233	0	0	0
Ukraine	1992	Europe, Central Asia	0.04	0.01	0.01	0.257	0	0	0
Ukraine	1996	Europe, Central Asia	0	0	0	0.325	0	0	0
Uruguay	1989	Latin America	1.1	0.47	0.4	0.423	0	0	0
Uzbekistan	1988	Europe, Central Asia	0	0	0	0.249	0	0	0
Uzbekistan	1993	Europe, Central Asia	3.29	0.46	0.11	0.332	0	0	0
Venezuela	1981	Latin America	6.3	1.08	0.25	0.556	0.08	0	0
Venezuela	1987	Latin America	6.6	1.04	0.22	0.534	0.14	0	0
Venezuela	1989	Latin America	8.49	1.77	0.49	0.557	0.19	0	0
Venezuela	1993	Latin America	2.66	0.57	0.22	0.416	0.29	0	0
Venezuela	1996	Latin America	14.69	5.62	3.17	0.487	0.36	0	0
Yemen	1992	Middle East, North Africa	5.07	0.93	NA	0.394	0	1018	28.49
Yemen	1998	Middle East, North Africa	10.7	2.42	0.85	0.344	0	1202	23.77
Zambia	1991	Sub-Saharan Africa	58.59	31.04	20.18	0.483	0	0	0
Zambia	1993	Sub-Saharan Africa	69.16	38.49	25.7	0.462	0	0	0
Zambia	1996	Sub-Saharan Africa	72.63	37.75	23.88	0.497	0	0	0
Zimbabwe	1991	Sub-Saharan Africa	35.95	11.39	4.56	0.568	0	0	0

Notes: All poverty and inequality data from World Bank, Global Poverty Monitoring database. Migration data from U.S. Population Census and OECD, Trends in International Migration. Remittance data from IMF, Balance of Payments Statistics Yearbook.